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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-----------------------------|------------------------|
| 10/599,726 | 07/31/2007 | Ralf Lerner | D4695-00160 | 3310 |
| 8933 7590 07/01/2010 DUANE MORRIS LLP - Philadelphia IP DEPARTMENT 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103-4196 | | | EXAMINER NGUYEN, THINH T | |
| | | | ART UNIT 2818 | PAPER NUMBER |
| | | | MAIL DATE 07/01/2010 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/599,726 | Applicant(s) LERNER ET AL. | |
| | Examiner THINH T. NGUYEN | Art Unit 2818 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 7-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>1/11/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED OFFICE ACTION

1. Applicant's election of claims 1-6 and 10 pertains to species I for prosecution without traverse in the communication with the Office on April 05th 2010 is acknowledged.

2. The Examiner notes that Claim 10 is a hybrid product by process claim for reciting -- "being **formable by any of the preceding method** "--.

In a product-by-process claim, it is the patentability of the claimed product and not of the recited process steps which must be established. Therefore, when the prior art discloses a product which reasonably appears to be identical with or only slightly different than the product claimed in a product-by process claim, a rejection based on sections 102 or 103 is fair. The Patent Office is not equipped to manufacture products by a myriad of processes put before it and then obtain prior art product and make physical comparisons therewith. In re Brown, 173 USPQ 685 (CCPA 1972). Also, a product by process claim directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ I S at 17 (footnote 3). See In re Fessman, 180 USPQ 324, 326 (CCPA 1974); In re Marosi et al., 218 USPQ 289, 292 (Fed. Cir. 1983); and particularly In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985), all of which make it clear that it is the patentability of the final structure of the product "gleaned" from the process steps, which must be determined in a "product by process" claim, and not the patentability of the process. See also MPEP 2113. Moreover, an old and obvious product produced by a new method is not a patentable product, whether claimed in "product by process" claims or not.

Note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ

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685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Marosi et al, 218 USPQ 289; and particularly In re Thorpe, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above caselaw makes clear.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 is indefinite because of the unclear recitation:

-- "**the material removal** at the respective two sidewalls (10b) does not result in a rounding of upper and lower edges of the trench (10) and **is substantially zero**"-- ???

Note that **the material removal** describes an action and it is unclear why this action is **substantially zero** ??? zero of action or zero of what ???

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that forms the basis for the rejections under this section made in this office action.

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

6. Claim 1-6,10 -are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe et al. (Japanese Patent JP406349940 A.).thereafter Watanabe 940

With regard to claim 1, Watanabe 940 discloses (the abstract, fig 1 to fig 4,fig 10,fig 11,fig 14,fig 15) a method for manufacturing, forming or creating at least one dielectrically insulating trench comprising rounded edges (fig 4) of active silicon layer portions (fig 4 # 2,#3,#6, #7) adjacent to the trench, each of said rounded edges (fig 4) located at a respective transition area (fig 4) connecting to a buried insulating layer (fig 4, #2) of an SOI structure,(fig 4) said method comprising performing an etch process (the abstract) consisting of two steps,

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wherein in the first step of the etch process said trench (Fig 10) is etched to the insulating layer (fig 10 element 2); in the second step of the etch process under-etched regions are formed on both sidewalls of the trench (10) by isotropically etching a part of the insulating layer (fig 12) after performing said etch process thermally oxidizing surfaces of said trench and said under-etched regions (fig 3, fig 14,fig 15)

With regard to claim 2, Watanabe 940 discloses (the abstract, fig 1 to fig 4,fig 10,fig 11,fig 14,fig 15) a method for manufacturing wherein the insulating (fig 2,fig 3 element 2) is used as an etch stop layer during said first step.

With regard to claim 3, Watanabe 940 discloses (the abstract, fig 1 to fig 4,fig 10,fig 11,fig 14,fig 15) a method for manufacturing wherein in said second step a material removal at both sidewalls of the at least one trench is small due to a selectivity of the isotropic etching, thereby substantially not resulting in a rounding of upper and lower edges of the trench (the abstract, fig 4)

For claim 4, to expedite the prosecution of the case, The Examiner assumes that the Applicant will correct claim 4 and make it in compliance with 35 U.S.C. second paragraph and try to examine the claim as best as the Examiner can understands it. Therefore, claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe 940 . Note that Watanabe 940 discloses in fig 14 and 15 a method wherein the material removal at the respective two sidewalls does not result in a rounding of upper and lower edges of the trench

With regard to claim 5 , Watanabe 940 discloses (the abstract, fig 1 to fig 4,fig 10,fig 11,fig 14,fig 15) a method wherein the thermal oxidation is performed for creating the insulating

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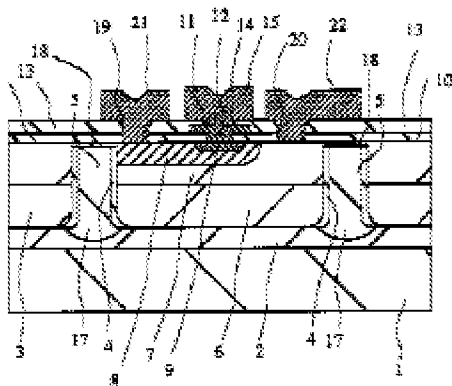
layers (the abstract, fig 1, fig 4, fig 5 element 4) on the vertical walls of the isolation trench and on surfaces of the under-etched regions

With regard to claim 6, Watanabe 940 discloses (the abstract, fig 1 to fig 4, fig 10, fig 11, fig 14, fig 15) a method wherein the buried insulating layer (the abstract, fig 1, fig 3, fig 4 element 2) is an SiO₂ layer.

With regard to claim 10, Watanabe 940 discloses (the abstract, fig 1 to fig 4, fig 10, fig 11, fig 14, fig 15) SOI wafer (the abstract,) comprising at least one and preferably a plurality of dielectrically insulating trenches having rounded edges (fig 1, fig 4, fig 16, fig 17) formed of active silicon layer portions fig 1, element 3, 6, 7, 8) located adjacent to the trench, said rounded edges located at a respective transition area (fig 1) connecting to a buried insulating layer (fig 1, element 2), said SOI wafer formed or being formable according to any of the preceding methods.

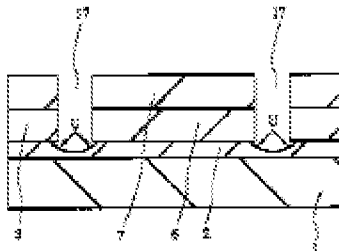
Note that for claim 10, for the rationale set forth in paragraph 2 of this Office Action any product by process limitations are not considered.

FIG. 1



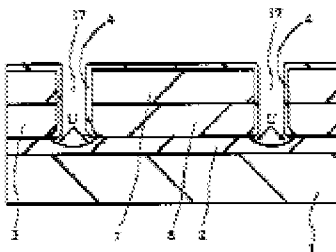
【図2】

図 2



【図3】

図 3



【図4】

図 4

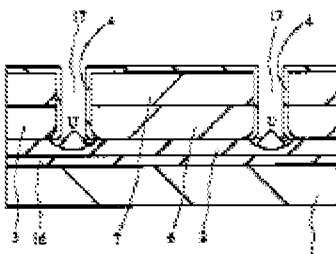


FIG. 10

FIG. 10

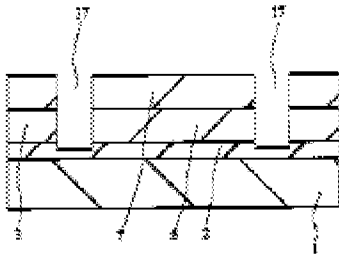


FIG. 10

FIG. 10

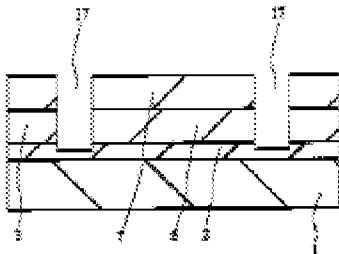
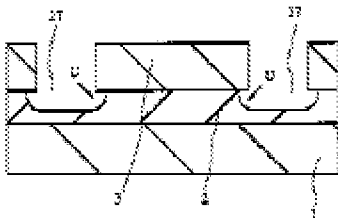


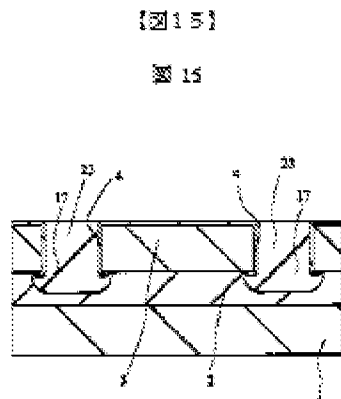
FIG. 14

FIG. 14



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WATANABE 940 DISCLOSURES



WATANABE 940 DISCLOSURES

7. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

8. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).

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9. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d) which papers have been placed of record in the file.

CONCLUSION

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790. The examiner can normally be reached on Monday-Friday 9:30am-6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Loke can be reached at 571-272-1657. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval [PAIR] system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Thinh T. Nguyen/

Primary Examiner
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